

## INTRODUCTION PAGE

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THE MOTOR-MECHANIZATION PROGRAM OF THE RED ARMY  
DURING THE INTERWAR YEARS

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## Introduction

The Soviet Union emerged from the Russian Civil War united under Lenin's Bolshevik Party but facing immense problems of reconstructing national institutions to suit a socialist mold. As the nation formulated economic policies to salve the wounds of war (the New Economic Policy) and political programs to consolidate its power, it also addressed the critical question of national security, specifically a program of military reconstruction to establish a military instrument to suit the socialist nation and guarantee its future survival. While Commissar of War, M. V. Frunze, articulated a basic program for a new "Unified Military Doctrine," other military theorists began what would become a Soviet penchant for the study of future war. Their intent was to fashion an effective modern military force and a conceptual framework within which it could operate.

During the 1920s military necessity prompted the Soviets to define a new theoretical realm within military science, which they termed "operational art." During that decade a host of military theoreticians and practitioners of war pondered questions arising from First World War and the Russian Civil War operations, many of the same questions Western theoreticians were addressing. First and foremost among those questions was how to break the tactical stalemate of positional war, which had produced on the Western Front four years of bloodletting devoid of major operational successes. European prewar military theorists had postulated that strategic victory could be achieved by winning one grand



victory early in war. Further, they believed that wholesale initial tactical successes could produce rapid strategic victory.

The events of 1914 to 1918 proved that belief to be false. The crushing weight of firepower facing First World War armies inhibited mobility and denied the participants strategic success until they succumbed to exhaustion produced by a war of attrition. The Soviets, however, experienced a different phenomenon in their Civil War. During that three-year struggle, the vast spaces of Russia and the paucity of both forces and heavy weaponry permitted mobile operations to occur in stark contrast to what had occurred in the European World War.

During the early 1920s, the Soviets analyzed their World War and Civil War combat experiences and concluded that the complexity of modern war had negated the meaning of the older definitions regarding levels of war.<sup>1</sup> Basically, the Soviets reasoned that strategic success in war could no longer result from the planning and conduct of tactical operations. In the future, an intermediate level was required--a level of war the Soviets came to call operational. They judged that only cumulative operational success achieved by successive operations could produce overall strategic victory on the battlefield.

This view had emerged by 1924 from the minds and pens of many theorists, but it was the ex-Tsarist officer, A. A. Svechin, who gave it clearest definition in his 1927 book Strategia [Strategy]. Svechin wrote, "Normally the path to final [strategic] aims is broken up into a series of operations subdivided by time and by more or less sizeable pauses, comprising differing sectors of a theater of war and differing

sharply as a consequence of different intermediate aims.<sup>22</sup> Within the context of these successive operations, Svechin defined the operation as "that act of war during which struggling forces, without interruption, are directed into a distinct region of the theater of military operations to achieve a distinct intermediate aim."<sup>23</sup> Looking at the lower end of the spectrum of combat, Svechin concluded, "Operational art, arising from the aim of the operations, generates a series of tactical missions."<sup>24</sup> Thus a coherent structure emerged governing the conduct of war—"Tactics makes the steps from which operational leaps are assembled, strategy points out the path."<sup>25</sup> Svechin's practical definition was a comprehensive one which has withstood the test of time and closely resembles current Soviet definitions.

Once the Soviets accepted the validity and importance of operational art as a precondition for strategic victory, they were confronted with another dilemma, of devising methods and forces to conduct operational maneuver, which they realized was key to achieving operational success. This requirement posed distinct problems for the Red Army of the 1920s and prevented the Soviets from developing a mature operational capability overnight. The Red Army of the 1920s was a "foot and hoof" army of infantry and cavalry forces lacking both the firepower and strength to sustain deep operational maneuver.

Between 1929 and 1936 Soviet military theorists worked out the theoretical basis of, first, a tactical concept of deep battle [glubokii boj] and, then, an operational concept of deep operations [glubokaiia operatsiia]. Parallel to this theoretical work, the forced

industrialization of the Soviet economy began to produce weaponry and equipment necessary to create a Red Army force structure capable of conducting operational maneuver--namely a mechanized and armored force.<sup>6</sup> The ensuing motor-mechanization program of the Red Army propelled Soviet military concepts and forces into a new technological age.

## Toward Deep Battle

### Theoretical Context

Soviet military strategy in the 1920s, derived from the experiences of the First World War and the Civil War, concluded that future war would begin with extensive maneuver operations, it would occur over vast regions, and it would consume huge economic and human resources. S. S. Kamenev, Red Army commander from 1919 to 1924, wrote:

in spite of all victorious fights before the battle, the fate of the campaign will be decided in the very last battle--interim defeats will be individual episodes....In the warfare of large modern armies, defeat of the enemy results from the sum of continuous and planned victories on all fronts, successfully completed one after another and interconnected in time.<sup>7</sup>

Kamenev rejected the possibility of using a grand strategic stroke to win quick victory in war (such as the Schlieffen Plan). Instead, he argued, "the uninterrupted conduct of operations is the main condition for victory." Tukhachevsky, drawing upon his experiences along the Vistula in 1920, concluded that "the impossibility, on a modern wide front, of destroying the enemy army by one blow forces the achievement of that end by a series of successive operations."<sup>8</sup> V. K. Triandafillov, in his 1929 work, The Character of Operations of Modern Armies, echoed and further developed Tukhachevsky's view of future war and concluded that only successive operations over a month's time to a depth of 150 to 200 kilometers could produce victory. Triandafillov introduced the concept of using tanks supported by air forces to effect

penetration of the tactical enemy defense and extend the offensive into the operational depth.<sup>9</sup>

By 1929 the theory (but not yet the practice) of successive operations was fully developed. The front, as a strategic entity, would accomplish missions assigned by the High Command. It would unite all forces in a theater of military operations and would attack along several operational directions [axes] to achieve overall strategic aims. The width of a front's offensive zone was 300 to 400 kilometers, and its depth of operations was 200 kilometers.<sup>10</sup> This view of strategic operations persisted into the 1930s and forced Soviet military theorists to seek an answer to the question of how to implement Triandafillov's views and escape the specter of attrition warfare. The evolution of a new level of war seemed to provide the tentative theoretical answer—the level of operational art.

The tendency in the 1920s to conceive of successive operations as the focal point for operational art resulted from the level of technology within the Soviet Union in general, and the equipment processed by the Red Army in particular. Industrial backwardness and the lack of a well-developed armaments industry dictated that the Soviets rely on infantry, artillery, and horse cavalry to conduct operations. Hence, an optimistic view postulated that a front could attack in a 300 to 400-kilometer section to a depth of 200 kilometers, while an army, the basic operational large unit designated to operate as part of a front or on a separate operational axis [direction], could attack in a sector from 50 to 80 kilometers wide to a depth of 25 to 30

kilometers. It could also conduct a series of consecutive operations as part of a front offensive. Each operation would last for 5 to 6 days and would entail a relatively slow rate of advance of 5 to 6 kilometers per day. Already, by 1929 the Soviets planned to increase that rate of advance to 25 to 30 kilometers per day by following Triandafillov's recommendations to introduce tanks and mechanized vehicles into the force structure.<sup>11</sup>

The 1929 Field Regulation [Ustav], which declared that future war would be one of maneuver, developed the theory of successive operations a step further by injecting the idea of motorization and mechanization into concepts for future offensive operations.<sup>12</sup> The Ustav enunciated the aim of conducting deep battle [glubokii boi] to achieve success in penetrating the tactical depth of enemy defenses by the simultaneous use of infantry support tanks and long-range action tanks cooperating with infantry, artillery, and aviation forces. This would also produce a capability to conduct more rapid operations. In 1929 deep battle was but a promise whose realization depended on economic reforms and industrialization. Moreover, deep battle was only a tactical concept.

Soviet tactics of the 1920s were governed by a series of new regulations issued between 1925 and 1928, the provisions of which were derived from Civil War and the First World War experiences, with due consideration given to advances in weaponry. The regulations emphasized maneuver war, the meeting engagement, attack on a defending enemy, and defense in a war of maneuver. Group tactics of the later Civil War years persisted whereby combat formations were organized into groups of

subunits echeloned in depth instead of in skirmish lines. These groups would penetrate the enemy defense in separate sectors and then merge into a common battle front.

General tactics emphasized the combined-arms nature of battle. The Infantry Combat Regulation of 1927 and the Field Regulation of 1929 prescribed that offensive infantry combat formations consist of a shock group (2/3 of the force) operating on the main direction of attack, and a holding group (1/3 of the force) deployed on a secondary direction. A reserve (of up to 1/9th of the force) was to accomplish unanticipated missions, and firing groups of artillery would provide support. On the defense the first echelon consisted of the holding group (2/3 of the force) and the shock group or groups deployed in the depths (in second echelon) with the task of counterattacking and destroying penetrating enemy units.

Rudimentary tactics for the use of the fledgling armored forces first appeared in the 1928 Provisional Instructions for the Combat Use of Tanks and were reprinted in the 1929 Ustav.<sup>12</sup> Initially, tanks, in conjunction with artillery, would only provide support for infantry. Direct support tanks (1 to 3 platoons) would be assigned to rifle battalions. Forward-echelon tanks (a freely maneuvering group of 1 to 2 tank companies) would fight independently in tactical contact with each first-echelon rifle regiment (out of fire and visual contact) in order to suppress or destroy enemy artillery, forward enemy reserves, command posts, communications centers, or other objectives. Infantry attacking with armor support could advance without prior conduct of an artillery

preparation. Tank reserves of the division commander, if available, would operate as a separate echelon of long-range action tanks to develop success into the tactical depths or to replace depleted support units. These rudimentary tank tactics would soon improve, and the integration of armor into combined arms formations would accelerate in the 1930s as a virtual industrial revolution swept across the Soviet Union.

#### Motor-Mechanization Program: Phase 1

Because Soviet tank production in the 1920s was extremely limited, only a handful of tank units were formed, and virtually all of these were classified as "experimental." Between 1920 and 1922, the single tank factory in Moscow produced sixteen tanks, which were then assigned to the 7th Tank Detachment, subordinate to the High Command.<sup>14</sup> That detachment participated in ceremonies on Red Square. Measures to expand that rudimentary armored force matured slowly. In October 1924 the Soviets organized the 3d Separate Tank Regiment, consisting of a cadre and a training battalion with 356 men and 18 tanks.<sup>15</sup> The following year the Soviets abolished the regiment and, in its stead, created two separate 30-tank battalions, one heavy and one light, each with three companies of ten tanks. In 1927 these battalions again formed a regiment, which was supplemented by six armored car battalions (with ANOF-15 armored cars) and about thirty armored trains.<sup>16</sup>

Serial production of the new MS-1 tank armed with a 37 mm gun and machine gun and the BA-27 armored car provided adequate levels of

domestic tank production necessary to expand the armored and mechanized force structure. According to the first Five-Year Plan, approved in 1928, Soviet industry was to produce 1075 tanks, which in turn would provide the weaponry for three new tank regiments and several separate tank battalions. The Soviets accelerated these plans the following year by mandating a new tank production figure of 3500 tanks by 1932.<sup>17</sup> These tanks were to be used to form three mechanized brigades, thirty mixed tank battalions (with 32 light and 34 medium tanks each), four heavy tank battalions for the High Command reserve (with 35 tanks each), and thirteen mechanized regiments (each with tank and armored car battalions) for use in cavalry formations. Meanwhile, the Red Army staff scheduled exercises to determine whether single or multiple-type tank battalions were best suited to modern combat. The Soviets, however, did not project inclusion of tanks in rifle corps or divisions. Instead, each rifle division was to include an armored car company. By the summer of 1929, the Soviets tested experimental tank and mechanized units and employed one MS-1 battalion in combat in Manchuria. Based on these experiences, they formed a new experimental mechanized regiment in 1929.<sup>18</sup>

Western attache reports confirmed Soviet experimentation with tank and mechanized forces. A March 1922 U.S. attache report from Riga, Latvia, identified a small tank detachment equipped with three tanks, presumably of foreign manufacture, within the structure of an armored automobile detachment.<sup>19</sup> Subsequent reports through 1926 continued to note the existence of these detachments. The U.S. attache in Riga

submitted a report in January 1927 identifying two tank regiments (designated the 1st and 2d) and containing a critique by the Chief Inspectorate RKKA [Red Army] of recent training. The report noted, "The tank has not yet been allotted a fixed role in the Soviet battle scheme." Over-reliance by infantry on the tanks produced inordinate tank losses, which were further compounded by high mechanical breakdown rates. Anti-tank artillery was particularly effective against tanks, and, although morale and training in the tank units was particularly high, persistent signal and radio problems inhibited effective command and control and coordination with the infantry, even in peacetime maneuvers.<sup>20</sup>

A more detailed report prepared by the U.S. attache in Riga in April 1927 provided a detailed organization of the 3d Separate Tank Regiment, which took part in the 1926 fall maneuvers. The regiment consisted of a cadre battalion with two tank companies of five tanks each, an instructional battalion with two heavy companies, totaling eight tanks, a signal detachment, workshop, guard platoon, and various logistical details.<sup>21</sup>

A December 1928 attache report confirmed the existence of the 1st Tank Regiment at Moscow, together with the 3d Armored-Auto Battalion [Divizion]. The same report, however, noted, "There is contradictory information as to the station of the 2d Tank Regiment in the LMD [Leningrad Military District], but no confirmatory data has been received so far." Similarly, the report noted that the 8th and 13th Armored-Auto Battalions were stationed in the Belorussian Military

District (the latter as part of 3d Cavalry Corps).<sup>22</sup> Other reports in 1928 echoed the Soviet armored regulations issued that year.

Thus, prior to 1930 the formation of tank and mechanized units was extremely limited, and these measures represented but a first small step toward motor-mechanization. While tank forces would be subordinate to the reserve of the High Command to "increase the striking power of rifle formations," they would be added to cavalry forces to enable them to better perform the exploitation function.<sup>23</sup> These measures did, however, represent a promise of more significant developments in the future.

## Toward Deep Operations

### Theoretical Context

Soviet military strategy in the thirties built upon the assumptions of the twenties, although it was increasingly affected by the industrial and technological revolution occurring within the Soviet Union and by looming threats from hostile powers abroad. Soviet strategy maintained that the class character of war would result in implacable and decisive future military combat, and that war would ultimately pit the Soviet Union against a coalition of imperialist nations. Long and bitter war would require the consecutive defeat of the Soviet Union's enemies, the use of large strategic reserves, resort to many means and forms of armed combat, and the conduct of large-scale maneuverable combat operations. War would require the achievement of decisive aims, including the full destruction of the enemy on his territory. Quite naturally, the Soviets considered the offensive as the most decisive and fruitful form of strategic operation.

The strategic offensive would take the form of simultaneous or successive front operations conducted by closely cooperating combined-arms forces. The ground forces would play a decisive role, especially the newly emerging motor-mechanized units. Air forces would support all types of ground force operations and could perform independent air operations as well, while naval forces would cooperate on coastal directions. The theories of deep battle [glubokii boi] and deep operations [glubokie operatsii] were particularly important to Soviet

military strategy in the 1930s, in part because, at least until 1940, it focused Soviet attention on the offensive to the detriment of defensive concerns. Soviet strategy considered the defense a valid form of military operation and emphasized activity [*aktivnost'*] and the use of counteroffensives. Much attention was devoted to the nature of the initial period of war and the requirements of strategic leadership in wartime. The Soviets recognized that a surprise attack by hostile powers was possible. In this regard, they believed that, unlike the practices of earlier wars, forces of the covering echelons (on the borders) could undertake an offensive of their own against the enemy before the completion of main force strategic deployments or undertake defensive measures to cover the main force deployment. By the Soviets' own admission, military strategy:

did not devote adequate attention to the development of defensive operations on a strategic scale...questions of repelling an unexpected attack by previously fully-mobilized enemy forces as well as the overall problem of the initial period of war under changing conditions were not properly worked out. Not all of the correct theoretical principles worked out by Soviet military science with respect to military strategy were promptly taken into account in the practical work or included in regulations.<sup>24</sup>

This was an easy admission, considering what happened in 1941. To provide strategic leadership in armed conflict, a special organ similar to the Civil War-period Council of Labor and Defense would be formed as well as a Stavka [HQ] of the High Command [VGK].

Operational art, developed as a level of war in the 1920s, blossomed into the most creative area of Soviet military art in the decade of the

thirties, largely due to technological and industrial developments and the theoretical work of a host of imaginative military theorists. The impact of new weaponry, first felt in the tactical realm, by the mid-thirties affected the operational level. In essence the promise of the 1929 Field Regulation to achieve deep battle was realized.

The most important aspect of Soviet military science in the 1930s was the full development of the concept of deep battle and the emergence of the concept of deep operations. The deep operation, a form of combat action conducted by operational large units:

consisted of simultaneous attacks on the enemy defense with all means of attack to the entire depth of the defense; a penetration of the tactical defense zone on selected directions and subsequent decisive development of tactical success into operational success by means of introducing into battle an echelon to develop success (tanks, motorized infantry, cavalry) and the landing of air assaults to achieve rapidly the desired aims.<sup>25</sup>

The theory of deep operations represented a qualitative jump in the development of operational art, and it offered a total escape from the impasse of World War I positional warfare. Its implementation depended entirely on the Soviet ability to construct a viable armored and mechanized force.

The theory of deep operations evolved out of the earlier theory of deep battle, which Tukhachevsky, Triandafillov, A. I. Egorov and others had formulated at the end of the 1920s. These theorists concluded that the appearance of new weapons (long-range artillery, tanks, aircraft) and types of forces (tank, air assault, mechanized) would permit creation of more maneuverable forms of combat and ease the problem of

penetrating a tactical defense. Early experimentation with deep battle techniques occurred in the Volga, Kiev, and Belorussian military districts, and, as a result, in February 1933 the Red Army gave official sanction to deep battle in its Provisional Instructions on the Organization of Deep Battle<sup>26</sup>. New and more explicit instructions appeared in March 1935, and the Field Regulation [Ustat] of 1936 made deep battle, as well as larger-scale deep operations, established tenets of Soviet military art. While deep battle focused on the tactical level, that is combat by units within an army, deep operations focused on operational-level combat involving fronts and armies alike.

The theoretical basis of deep operations, field tested in military exercises in the mid-thirties, was established by 1936 and described in the Regulation of that year as:

simultaneous assault on enemy defenses by aviation and artillery to the depths of the defense, penetration of the tactical zone of the defense by attacking units with widespread use of tank forces, and violent development of tactical success into operational success with the aim of the complete encirclement and destruction of the enemy. The main role is performed by the infantry and the mutual support of all types of forces are organized in its interests.<sup>27</sup>

The heart of deep operations involved the use of an operational formation consisting of: an attack echelon; an echelon to develop success; reserves; aviation forces; and air assault forces, all designated to achieve tactical and operational success. Deep operations could be conducted by a single front or (according to views of the late thirties) by several fronts supported by large aviation forces. By this

time the Soviets considered a front to be an operational-strategic large unit (earlier it had been considered only a strategic large unit).

Fronts conducted the largest-scale deep operations by employing successive army operations to penetrate enemy defenses along converging axes in order to encircle and destroy enemy main forces. Successful penetration of an enemy defense required considerable overall superiority in forces and creation of high force densities in penetration sectors. Development of the offensive into the operational depths required use of mechanized and cavalry corps, front reserves, and air assault landings in the enemy rear. To conduct deep operations, a front had to consist of:

3-4 shock armies  
1-2 standard armies  
1-2 mechanized, tank or cavalry corps  
15-30 aviation divisions.<sup>28</sup>

Fronts could attack in a sector 250 to 300 kilometers wide against objectives at a depth of 150 to 250 kilometers and deliver the main attack in a sector of 60 to 80 kilometers. Force densities of one division per 2 to 2.5 kilometers, 40 to 100 guns per 1 kilometer of front and 50 to 100 tanks per 1 kilometer of front would result. A front operation would last 15 to 20 days with an average tempo of advance of 10 to 15 kilometers per day for infantry and 40 to 50 kilometers per day for mobile forces.<sup>29</sup> Within the front the attack echelon would consist of strong shock and combined-arms armies, and the echelon to develop success would be composed of mobile groups formed

from tank, mechanized and cavalry corps. Aviation groups and reserves would support the fronts.

Armies, as operational large units, could operate within a front or independently along a separate operational direction. Armies participating in deep operations on front main attack directions would consist of:

- 4-5 rifle corps
- 1-2 mechanized or cavalry corps
- 7-9 artillery regiments
- 7-8 air defense artillery battalions
- 2-3 aviation divisions (in support).<sup>30</sup>

The army attack echelon, consisting of rifle corps reinforced by tanks and artillery, would advance in a sector 50 to 80 kilometers wide with its main strength concentrated in a penetration sector 20 to 30 kilometers wide to penetrate the tactical enemy defenses to a depth of 25 to 30 kilometers. The echelon to develop the penetration, an army mobile group of several mechanized or cavalry corps, would complete the penetration of the enemy's tactical defense or attack after penetration of the enemy's second defense belt to develop tactical success into operational success to a depth of 70 to 100 kilometers.<sup>31</sup> The Soviets exercised deep operation concepts in maneuvers in the Kiev, Belorussian, Moscow, and Odessa military districts in the mid-thirties.

Theoretical work on operational-level defense focused on the preparation and conduct of army defensive operations. An army could defend a sector of 80 to 100 kilometers to a depth of 60 kilometers.<sup>32</sup> However, as was the case with the strategic defense, by the Soviets' own admission, prior to 1940 their fixation on the offensive caused too

little attention to be paid to front defensive operations, a deficiency evident in 1941.

The theory of deep battle, which was worked out in 1929, before the development of the theory of deep operations, was the tactical counterpart of that broader operational theory. By 1936 those tactical concepts were close to realization, while deeper operations still existed only in theory. Deep battle as envisioned in the 1936 Regulation involved the creation in the combat formation of corps, divisions, and regiments of shock groups, holding groups, reserves, and artillery groups. The shock group, consisting of 2/3 of the force, attacked on the main attack direction. In the case of considerable superiority over the enemy, two shock groups could attack on converging directions. The holding group, consisting of almost 1/3 of the force, operated on the secondary attack direction to distract the enemy and protect the shock group's flank. A reserve amounting to 1/9th of the force was retained to fulfill unexpected missions. Rifle corps' shock groups sought to penetrate the enemy defense to a depth of 10 to 12 kilometers, which was the average depth of the enemy's tactical defense. Rifle corps on the main attack direction in the army first echelon advanced in an 18- to 20-kilometer sector and rifle divisions in a 5- to 7-kilometer sector (with the divisions' shock group deployed in a 3- to 3.5-kilometer sector).<sup>33</sup>

Tanks, subdivided into three groups, played a significant role in the conduct of deep battle. Immediate infantry support tanks [НПП-непосредственной поддержки пехоты], long-range support tanks [ДПП-

dal'nei podderzhki pekhoty), and long-range action tanks [DD-dal'nego deistviia] attacked in advance of and with the infantry, fired on enemy artillery and tanks, and accompanied the advance through the tactical depth of the defense, respectively. Artillery groups for infantry support [PP-podderzhki pekhoty] were formed in each first-echelon rifle regiment, long-range artillery groups [DD-dal'nego deistviia], established in each first-echelon rifle division of corps, and, were in some instances, artillery destruction groups [AR-artillerii razrusheniia], created in corps, provided continuous fire support for the attack.<sup>34</sup>

### The Motor-Mechanization Program: Phase 2

Rapid industrialization of the Soviet Union, the creation of a burgeoning armaments industry, and the renaissance in military thought, personified by the development of the offensive theories of deep battle and deep operations, wrought major changes in the size and nature of the Soviet force structure. Throughout the 1930s the Soviet armed forces increased in size from 562,000 men to 1.4 million men.<sup>35</sup> After the mid-thirties the Soviets moved away from the cadre/territorial manning system toward the peacetime maintenance of a large regular army. Older, established units in the force structure (rifle corps and divisions, and cavalry corps and divisions) increased in personnel strength and weaponry, but, more important, the Soviets created new mobile forces necessary to conduct deep operations.

The Soviet motor-mechanization program of the 1930s was designed to create a wide variety of new tank and mechanized forces to provide the offensive punch necessary to penetrate enemy tactical defenses and thrust deep into the enemy operational rear area. The motor-mechanization program was made possible by increased Soviet production of tanks and trucks. By the end of 1931, Soviet industry had delivered 900 MS-1 tanks to the Red Army. The same year they halted production of the MS-1 and began producing more modern T-26 and T-27 tanks. During the following two years, BT-2, T-35, T-28, BT-5, T-26, and T-37 models joined the Soviet armor inventory. Tank production reached an annual rate of 3,000 tanks and tankettes from 1932 on.<sup>36</sup> This increased

production fueled the drive for a more diverse motor-mechanized force structure.

After experimenting with tank battalions and regiments in the late twenties, in May 1930 the Soviets created from the Moscow tank regiment their first experimental mechanized brigade, consisting of one MS-1 tank regiment, a motorized infantry regiment, an artillery battalion, and a reconnaissance battalion, equipped with 60 tanks, 32 tankettes, 17 armored cars, and 264 trucks.<sup>37</sup> In order to better tailor this brigade to conduct deep battle, in 1931 the Soviets reinforced the brigade and subdivided it into functional groups more capable of sustaining operations. The new brigade contained four distinct regimental groups, including:

1. Reconnaissance Group (regiment)  
1 tankette battalion  
1 armored car battalion  
1 machine gun car battalion  
1 artillery battalion
2. Shock Group (regiment)  
2 tank battalions  
2 self-propelled artillery battalions (76mm field guns with tractors)
3. Infantry Battalion (truck-mounted)
4. Artillery Group  
3 artillery battalions (mixed 76mm guns and 122mm howitzers)  
1 antiaircraft artillery battalion.

The new brigade strength was 4,700 men, 119 tanks, 100 tankettes, 15 armored cars, 63 machine guns and antiaircraft machine guns, 32 76mm guns, 16 122mm howitzers, 12 76mm antiaircraft guns, 32 37mm antiaircraft guns, 270 trucks, and 100 tractors.<sup>38</sup>

In addition, the Soviets formed four tank regiments of three tank battalions each, which they stationed at Smolensk (1st), Leningrad (2d), Moscow (3d Training), and Khar'kov (4th). These regiments were subordinate to the Reserve of the High Command (RGK). Three separate tank battalion were formed principally on a territorial basis in industrial regions. As before, cavalry forces received priority in allocation of mechanized units. Mechanized squadrons, divisions, and, finally, regiments were formed in cavalry corps. By 1932 two mechanized regiments, two mechanized battalions, and three mechanized squadrons existed in Soviet cavalry corps.<sup>39</sup>

Intense study within the People's Commissariat of Defense in late 1931 and 1932 focused on the combat forces, which were required to implement fully the concept of deep battle. Tukhachevsky, Triandaillov, and others recommended peacetime creation of mobile mechanized forces which could cooperate with cavalry corps in wartime cavalry-mechanized groups. These groups would be tasked with developing tactical success in wartime front operations. Further work on organizational and equipment matters resulted in a 9 March 1932 decision by a special commission to create mechanized corps, tank brigades under the RGK, mechanized regiments in cavalry corps, and tank battalions in rifle divisions. Two days later the Soviet Revvoensovet [Revolutionary Military Council] ordered the creation in 1932 of two mechanized corps formed on the base of two rifle divisions in the Leningrad and Ukrainian military districts.<sup>40</sup>

In accordance with this decision, the Soviets transformed the Leningrad Military District's 11th Rifle Division into the 11th Mechanized Corps, which consisted of the 31st and 32d Mechanized Brigades and the 33d Rifle Brigade. Simultaneously, the Ukrainian Military District's 45th Rifle Division became the 45th Mechanized Corps, with the subordinate 133d and 134th Mechanized Brigades and 135th Rifle Brigade.

Each of these new corps consisted of:

2 mechanized brigades (one T-26 and one BT)  
3 tank battalions  
1 rifle-machine gun battalion  
1 artillery battalion  
1 sapper battalion  
1 antiaircraft machine gun company

1 rifle brigade

corps units

reconnaissance battalion  
sapper battalion  
flamethrower battalion  
antiaircraft artillery battalion  
movement control company  
technical base  
aviation detachment.

Total corps strength was 490 tanks, 200 vehicles, and around 10,000 men.<sup>41</sup>

Also in 1932 the Soviets created five separate mechanized brigades, two tank regiments, twelve mechanized regiments, four mechanized battalions in cavalry formations, and fifteen tank and sixty-five tankette battalions in rifle divisions. The new mechanized brigades were assigned to the Ukrainian (2d) and Belorussian (3d, 4th, 5th) military districts and the Separate Red Banner Far Eastern Army (6th).

By Soviet count, by January 1933 this amounted to over a five-fold increase in mechanized forces, which now comprised 9.1 percent of total Red Army strength.<sup>42</sup> On 1 January 1934 Red Army mechanized forces included two mechanized corps, six mechanized brigades, six tank regiments, twenty-three tankette battalions, and thirty-seven separate tank companies in rifle divisions and fourteen mechanized regiments and five mechanized battalions in cavalry forces. Most of these units were, however, at less than fifty percent of full establishment strength.

Although contemporary observers of the Soviet military are skeptical about or ignorant of these developments in the 1930s, Western intelligence reports closely tracked the progress of the Soviet motor-mechanization program. By early 1930 "Distribution of Troop" [Order of Battle] reports from attaches had identified the 2d Tank Regiment at Leningrad and an additional regiment at Moscow. No mention was made, however, of the experimental mechanized brigades.<sup>43</sup> A subsequent report from Warsaw in March 1932 assessed the pace of motor-mechanization; identified three tank regiments (36 tanks each), without providing location; and provided details on four new motor-mechanized brigades as follows:

1st Brigade (3 regiments) at Moscow  
2d Brigade (2 regiments) at Leningrad  
3d Brigade (2 regiments) in the Ukraine  
4th Brigade (2 regiments) possible at Smolensk<sup>44</sup>.

These units corresponded to the Soviet tank regiments forming in early 1932 at those locations. The report described a brigade organization

which mirrored that of the Moscow experimental mechanized brigade of 1931 and consisted of:

Reconnaissance Group

10 motorcycles with machine guns  
1 machine gun company  
1 rifle company (on trucks)  
1 tankette company  
1 armored car platoon

1 Heavy Regiment

1 MS tank battalion  
1 mobile artillery group (76mm)

1 Light Regiment

1 infantry battalion (on trucks)  
2 tankette companies (Cardon Lloyd)  
1 armored car group  
1 mobile artillery group (76mm).

A short report from the U.S. attache in Riga, Latvia, in July 1933 hinted at the conversion of the Leningrad Military District's 11th Rifle Division into a mechanized corps, noting:

...there ought to be a steady increase in the strength of the motorized and mechanized units. In addition to the motor-mechanized brigade in Moscow, the 11th (Regular) Infantry Division at Leningrad may be practically considered as a motorized unit as it very likely has been equipped with motors and tractors for the entire personnel and materiel.<sup>44</sup>

He added, "The tendencies in the field of motorization show clearly that a very great interest is taken in the offensive 'deep tactics' mentioned in a previous article."

Two months later the same attache outlined in detail the nature and means of deep tactics as obtained from a source in the Estonian General Staff. He described the mission of deep tactics as "to engage or destroy simultaneously the whole depth of the hostile defensive system" and quoted a Soviet expert as to how it would be done, "By means of

large numbers of tanks, which are echeloned in leading, advanced accompanying, and accompanying (DD, DPP, and HPP) groups, it is possible to annihilate simultaneously the whole depth of the hostile first line [zone] of defense (5-6 kilometers).<sup>46</sup> When assessing how tactical success could be exploited, to what depths, and by what means the report stated, "The criteria for determining the depth of a simultaneous strategical operation is with the Soviets the range of action of mechanized units, light and medium aviation, and motor transportation (on an average up to 100 kilometers from the line of departure)."<sup>47</sup> In conclusion, the attache added the following "Note by the Military Attache," which was a prophetic warning to his superiors:

In contrast to most of the Continental armies which cling tenaciously to the lessons learned in the World War, the Red Army tries to break away from the conservative traditions of the past and to experiment with mechanization, motorization and all other new means of warfare. While the tactical principles set forth appear to be rather visionary, it is believed that they are of sufficient interest to warrant their being known.<sup>48</sup>

In November 1933 the attache at Riga forwarded two reports analyzing the conversion of 11th Rifle Division into what he called the II or 11th Motor-Mechanized Division. In it he identified the subordinate 31st, 32d, and 33d Brigades as regiments. He speculated that the new division would consist of:

- 2 motorized infantry regiments
- 1 regular infantry regiment
- 1 tank regiment of not less than 3 battalions
- 1 reinforced field artillery regiment, partly mechanized
- 1 tank unit of unknown composition (battalion or regiment)
- 1 motor-mechanized reconnaissance detachment
- 1 mechanized training regiment.

Its strength would be roughly 8,000 men, 255 tanks, 36 guns, and 1,820 to 1,870 vehicles.<sup>49</sup> In his second report, the attache assessed that the motor-mechanized division, and brigade as well, would operate with a shock group, a reconnaissance group, a liaison and security group, and a rear service group.<sup>50</sup> Aside from missing the designations "corps" and "brigade" for the division and regiment, the Riga reports were remarkably accurate.

A detailed "Distribution of Troops" report filed by the attache in Riga in January 1934 kept track of Soviet motor-mechanized forces as they evolved into four corps. Still referring to the units as divisions, the report identified motor-mechanized forces in the Belorussian, Moscow (Kalinovsky Division), Ukrainian (45th) and Leningrad (11th) military districts. Further, he identified thirty-seven mechanized detachments operating within rifle and cavalry divisions, at least two mechanized regiments with cavalry divisions, four separate tank regiments, and numerous separate tank battalions.<sup>51</sup> A subsequent order of battle report from Riga provided even firmer data on Soviet motor-mechanized forces by listing the divisional and regimental-size units as follows:

Leningrad Military District

11th Motor-Mechanized Division	Peterhof
2d Tank Regiment	Strelna

Moscow Military District

Kalinovski Motor-Mechanized Division	Marofominsk
3d Tank Regiment	Ryazin

White Russian [Belorussian] Military District

? Motor-Mechanized Division	Gomel
? Motor-Mechanized Division	Bobruisk
1st Tank Regiment	Smolensk

Ukrainian Military District

45th Motor-Mechanized Division  
? Motor-Mechanized Division

Kiev  
Kiev<sup>s2</sup>

Although the reports over-assessed mechanized force strength and confused division/regiment designation from corps/brigade, they more than adequately captured the scope of the Soviet motor-mechanization program.

Based on these and other reports, the Military Intelligence Division (G-2) of the U.S. War Department General Staff issued Intelligence Summaries in April and May 1934 assessing the program of motor-mechanization in the Soviet Union. The first summary began by declaring, "The present combat principles of the Soviets are based on mass employment of armored forces, the so-called deep tactics and annihilation operations, which they concert as yielding better results than the combat methods of the World War."<sup>s3</sup> The report detailed Soviet progress in building armored vehicles, reviewed the organization of tank and motor-mechanized forces (two divisions, brigades, regiments, and groups), and surveyed tactical employment of the force. Although the summary slightly underestimated the size and diversity of the Soviet forces (in contradiction to attache reports), it accurately captured the tactical and operational procedures set forth in Soviet regulations. Subsequent attache reports contained translations of Soviet articles on tank tactics covering a wide range of combat functions. In February 1935 the attache in Riga commented, "From these articles it is evident the Soviets envisage the use of tanks in almost every tactical situation; some of their tactical ideas appear to be rather advanced."<sup>s4</sup>

The second Soviet Five-Year Plan, adopted in 1933, envisioned a sizeable expansion of mechanized forces. It stipulated that by 1 January 1938, the Red Army was to include twenty-five mechanized and tank brigades, including those in the mechanized corps and those formed from existing tank regiments. This program was designed "to achieve such a scale of mechanization of the army, which would permit mechanized forces to become one of the chief, decisive elements in combat operations."<sup>55</sup>

Within this guidance, the motor-mechanization program accelerated. The most important element was the mechanized corps, which was to perform operational missions as part of cavalry-mechanized groups. Two additional mechanized corps joined the force structure in 1934: the 7th Mechanized Corps of the Leningrad Military District (which replaced the 11th, which moved to the Transbaikal MD); and the 5th Mechanized Corps of the Moscow Military District, which was formed on the base of the older 1st Mechanized Brigade.<sup>56</sup>

Exercises held in 1934 provided experiences upon which to base a new restructuring of the four existing mechanized corps. In those exercises the corps proved cumbersome and, because of lack of reliable communications, they were difficult to command and control. In addition, serious logistical shortfalls led to a high mechanical breakdown rate in the corps, which, in turn, blocked the roads and hindered the movement of other forces. Consequently, in 1935 the Soviets reorganized the corps and shifted logistical support organs from

corps level into the component brigades. The new mechanized corps structure, approved on 28 January 1935, included:

- 2 mechanized brigades (BT)
- 1 rifle-machine gun brigade
- 1 separate reconnaissance (tank) battalion
- 1 signal battalion

Corps strength was 463 tanks and tankettes (348 BT tanks, 63 T-37 tanks, 52 flame tanks), 20 guns, 1,444 vehicles, and 8,965 personnel.<sup>67</sup>

Additional engineer, antiaircraft, and other supporting units would be provided by the RGK, tailored to precise needs of the corps in particular combat circumstances. Although truncation and streamlining of the corps improved its mobility, continued communications weaknesses made effective command and control in battle impossible.

Separate mechanized brigades, as independent formations designated to support army operations or as a part of the mechanized corps, also underwent significant changes. The reorganized brigades consisted of:

- 3 tank battalions
- 1 rifle-machine gun battalion
- 1 combat support battalion
- 1 repair-reconstruction battalion
- 1 auto transport company
- 1 signal company
- 1 reconnaissance company.

Brigade strength amounted to 2,754 men, 145 tanks (T-26), 56 artillery and machine gun tanks, 28 armored cars, 482 vehicles, and 39 tractors.<sup>68</sup>

Subsequent Western intelligence reports fleshed out the full picture of the motor-mechanization program as it expanded. A January 1935 assessment counted two motor-mechanized divisions (and a possible third), seven mechanized brigades, and four tank regiments. The

brigades consisted of 3-4 tank battalions, a motorized artillery battalion, signal and pioneer companies, an MCO school, and support units.<sup>59</sup>

A March 1935 report from Riga for the first time recognized the term "corps," whose organization contained:

2 motor-mechanized brigades (one T-26, one BT)  
1 motorized rifle brigade  
1 motor-mechanized reconnaissance detachment  
1 field artillery regiment  
1 separate signal battalion  
1 separate engineer battalion  
1 MCO school.

The brigades were organized as follows:

First brigade (Motor-Mech)  
3 tank battalions (T-26)  
1 motorized infantry battalion  
1 field artillery battalion (76mm)

Second brigade (Motor-Mech)  
2 tank battalions (BT)  
1 motorized infantry battalion  
1 field artillery battalion (76mm)

Motorized brigade  
3 motorized infantry battalions  
1 field artillery battalion (76mm).

The report identified motor-mechanized detachments of infantry divisions (one company and a tankette platoon or one to two companies, a tank section or tankette company) and mechanized detachments of cavalry divisions (armored car battalion, tankette squadron, and two tank squadrons). In addition, it provided the organization of separate tank battalions (3 companies of 3 to 5 tank platoons each) and separate mechanized brigades (reconnaissance group, 3 to 5 tank battalions, one motorized infantry battalion, and one motorized artillery battalion).<sup>60</sup>

Throughout 1935 and 1936 U.S. assessments of Soviet motor-mechanized strength remained fairly static. Attention focused on the Leningrad (the 11th) and Ukrainian (the 45th) military district mechanized corps, which were invariably termed divisions, and on the growing number of mobile brigades and regiments. Attachés apparently did not detect the creation of two additional corps at Moscow (the 5th) and Leningrad (the 7th) or the movement of the 11th Mechanized Corps to the Far East. Throughout 1936 the new Soviet field service regulation and its implications seemed to preoccupy the U.S. intelligence community.

After adoption and implementation of the 1936 Field Service Regulation, in November 1937 the Soviets drafted their third Five-Year Plan (1938-1942), a major portion of which emphasized increasing military capabilities. Specifically, the plan envisioned creation of an even larger mobile force, which could achieve the operational goals of the regulation. It recommended creation of a force of four tank corps, twenty-one separate tank brigades, three separate armored brigades, and eleven tank training regiments to replace existing training brigades. The new brigades grew in strength as the standard three-tank platoon expanded to five tanks. Moreover, the plan called for creation of two types of tank brigades (heavy and light). Heavy T-35 tank brigades counted 148 tanks (94 T-35, 44 BT, 10 flame) and other heavy brigades 183 tanks (136 T-28, 37 BT, 10 flame). Light tank brigades had either 278 BT tanks or 267 T-26 tanks. Tank regiments numbered between 190 and 267 tanks. The plan also required the fielding of tank battalions (two companies with T-26 or T-38 tanks) in rifle divisions and tank regiments

in cavalry divisions.<sup>61</sup> To simplify nomenclature of armored forces, all mechanized forces were renamed tank.

Throughout 1938 the Soviets converted their motor-mechanized forces to the new configuration. The new light and heavy brigades included:

- 4 tank battalions
- 1 motorized rifle battalion
- 1 reconnaissance battalion
- support units.

Light tank battalions included fifty-four tanks and six artillery tanks.

Heavy tank battalions had a lower strength because they maintained their three-tank platoon configuration. All tank brigades in the tank corps adopted an organization similar to that of the separate light tank brigades. The renamed and reorganized tank corps had a strength of 12,710 men and 560 tanks and was organized as follows:

- 2 tank brigades (BT)
- 1 motorized rifle brigade
- 1 reconnaissance battalion
- 1 signal battalion.<sup>62</sup>

Western intelligence kept track of the burgeoning Soviet motor-mechanization program. In late 1937 attache reports noted an increased number of twelve mechanized and tank brigades in the Belorussian Military District alone.<sup>63</sup> Soon after, a War Department General Staff Intelligence Summary quoted from a "reliable" German source that there were probably five mechanized corps now in the Red Army force structure, three of which were identified (11th at Leningrad, 81st at Minsk, and 45th at Kiev). This source also reviewed the organization of the corps, mechanized brigades and mechanized regiments of cavalry corps and

divisions, separate mechanized brigades, and tank battalions of rifle divisions.<sup>64</sup> All organizations accorded well with reality.

Only in 1938, however, did attache reports record a significant increase in mechanized units and the renumbering of the mechanized corps. An October 1938 report from Riga identified the 7th Mechanized Corps and its subordinate units at Leningrad together with five separate tank and mechanized brigades elsewhere in the Leningrad Military District.<sup>65</sup> It noted motor-mechanized force dispositions in the Leningrad and other military districts as follows:

Leningrad Military District

7th (11th?) Corps	Leningrad
11th Mechanized Brigade	Pushkin
9th Mechanized Brigade	Luga
6th Tank Brigade	Stremtka
? Mechanized Brigade	Strelna
2d (?) Tank Brigade	Leningrad

Belorussian Military District

1st Tank Brigade	Smolensk
3d Mechanized Brigade	Starya Dorogi
4th Mechanized Brigade	Bobruisk
5th Mechanized Brigade	Borisov
21st Mechanized Brigade	Minsk
16th (18th) Mechanized Brigade	Lepel
10th Motor-Mechanized Brigade	Unknown

Kiev Military District

45th Corps	Kiev
8th Mechanized Brigade	Kiev
? Tank Brigade	Kiev
? Mechanized Brigade	Proskurov
? Mechanized Brigade	Novogrod
? Mechanized Brigade	Shepotovka

Moscow Military District

5th Corps	Marofominsk
3d Tank Brigade	Riazan

Transbaikal Military District

In addition, the report listed five mechanized brigades, two tank regiments, and four tank battalions scattered throughout other military districts. A companion report provided organization data on all type motor-mechanized forces and pegged total Soviet motor-mechanized strength at:

-4 corps comprising 11 brigades (3 corps of 3 brigades and 1 corps of 2 brigades), for a total of 7 mechanized and 4 motorized brigades; -27 separate brigades, either mechanized, motor-mechanized, or tank.<sup>66</sup>

Subsequent attaché reports in 1938 and 1939 also confirmed that the Soviets renamed mechanized corps as tank corps. They did not, however, substantiate Soviet claims that no new tank corps were created after 1937. Soviet sources list the four corps existing in 1936 as the 7th in Leningrad, the 5th in Moscow, the 45th in Kiev, and one corps (the old 11th) in the Far East. Other Soviet sources mention a 10th Tank Corps in the Finnish War of 1939-40 and participation of 15th Tank Corps (Belorussian) and 25th Tank Corps (Ukraine) in the occupation of eastern Poland in September 1939.<sup>67</sup>

Attache reports confirm Soviet accounts of the post-1936 corps and repeatedly provide details of a 1st Tank (Mech) Corps in Minsk, Belorussia. These reports also list the 4th Tank Corps in the Transbaikal Military District. Later reports described existing corps as follows:

1st Tank Corps	Western MD (Minsk)
3d Tank Corps	Kiev MD
4th Tank Corps	Transbaikal MD
5th Tank Corps	Moscow MD

7th Tank Corps	Leningrad MD
8th Tank Corps	1st Red Banner Army (Far East)
9th Tank Corps	Transbaikal (Mongolia)
10th Tank Corps	Leningrad MD (Viipuri)
15th Tank Corps	Western MD (Minsk)
25th Tank Corps	Kiev MD (Proskurov)

plus two additional tank corps in Western and Kiev MDs.<sup>62</sup>

The level of detail in these reports and their correlation with other fragmentary Soviet sources argue that the Soviets did, in fact, create new tank corps in 1938 and 1939 before they made major decisions in late 1939 which eventually adversely affected its entire motor-mechanization program.

Thus, Western intelligence materials from the 1930s confirmed the full scope of the Soviet motor-mechanization program during that decade. Moreover, the reports, together with fragmentary Soviet citations, indicated that the program was even larger than standard Soviet accounts admit. That fact made Soviet decisions taken in late 1939 even more momentous.

The vigorous theoretical and practical progress the Red Army made between 1929 and 1938 increased its combat capabilities and contributed to a more offensive posture by the nation in general. This was done during a time of crises both in the West and in the East, where Fascist and Japanese militarism threatened to tear apart the fabric of capitalist society. The renaissance in Soviet military thought and force capabilities, if left to develop unimpeded, portended a more active offensive stance on the part of the Soviet Union in world

affairs, a stance already presaged by Soviet encouragement of "popular fronts" to resist the force of Fascism and assist in the spread of socialism. Ironically, however, Soviet military progress was hampered by events occurring within and outside the Soviet Union, events which strangled the renaissance in military thought and reduced Soviet military capabilities at a time when she most needed them. This applied, in particular, to the motor-mechanization program.

## Years of Crises and Indecision

### Theoretical Context

Abruptly in 1937 Stalin lashed out at the only remaining segment of Soviet society capable of challenging his power--the military. In a fit of paranoia, Stalin extended his purges and, without benefit of the show trials and legal niceties characterizing his earlier purges, he summarily arrested, shot, or incarcerated the bulk of the Soviet officer corps on the charge of high treason.<sup>69</sup> The purge of the military liquidated the generation of officers who had given definition to Soviet strategy, operational art, and tactics, who had formulated the concepts of deep battle and deep operations, and who had orchestrated the reconstruction of the Soviet armed forces. Tukhachevsky, Yegorov, Kamenev, Uborevich, Svechin, and a host of others, the cream of the crop of innovative military theorists, were purged and killed. Inevitably, their ideas and theories fell under a shadow. Those officers who survived the purges were junior, generally orthodox, or reluctant for obvious reasons to embrace vocally the ideas of their fallen predecessors.

As the shadows of the Second World War spread over Europe, the price the Soviet Union and its military had paid for the purges slowly became apparent. Although Soviet military analysts still pondered the nature of modern war, the analysis was thin, and the results of the analysis were acted upon slowly. Analysis of the experiences of Soviet tank specialists in the Spanish Civil War cast doubt on the feasibility of

using large tank units in combat because of the difficulty in controlling them and because of their vulnerability to artillery fire. Soviet occupation of eastern Poland in September 1939 highlighted the command and control and logistical difficulties involved in employing large motor-mechanized forces. The 15th and 25th Tank Corps, which participated in that operation, suffered greatly from mechanical breakdown and logistical shortages.<sup>70</sup> G. K. Zhukov's successful use of tank forces against the Japanese on the Khalkhin-Gol [river] in August 1939 received attention--not for the successful use of tank forces--but rather for the excessive amount of time required to crush the stubborn Japanese resistance. Moreover, Zhukov employed multiple small tank brigades and armored brigades rather than the larger corps.<sup>71</sup> All of these instances led to a November 1939 Soviet decision to disband the tank corps.

To a degree, Soviet confusion in the strategic realm reflected confusion in the political realm. The policy decisions to abandon support of popular fronts and to sign nonaggression pacts with the most threatening of capitalist powers, Germany and Japan, were paralleled by the lack of Soviet study of the nature of the initial period of war, specifically, the likelihood of enduring and repelling a surprise attack. After 1939 the Soviets would have but two years to establish defensive plans and a force structure to carry them out. Soviet unpreparedness in June 1941, in the face of a clear and impending threat, resulted from Soviet failure to respond adequately to strategic dilemmas--a failure since 1956 attributed directly to Stalin.

Soviet experiences in the Spanish Civil War and the Soviet-Finnish War of 1939-1940 combined with the earlier experiences to produce some changes in operational art and tactics. Soviet forces performed dismally in initial offensive operations during the Finnish war. Offensive preparations were poor, coordination of forces weak, and command and control ineffective. Consequently, the first offensive failure was a major embarrassment. Only after more extensive mobilization and intensive preparations were Finnish defenses crushed.

This experience further discredited the tank forces, which had played a limited and largely ineffective role in the war. It also led to adjustments in Soviet operational techniques, which were subsequently incorporated into the 1941 Field Regulation. The wartime difficulties the Soviets experienced in penetrating deep, well-equipped defenses prompted the Soviets to increase force concentrations and create higher densities of supporting artillery. Consequently, the width of a projected front offensive decreased somewhat as did the planned depth of operations. The front penetration sector decreased, but the army offensive sector and penetration sectors remained as they had been. Truncation of the front offensive sector improved concentration of forces and increased the projected depth of army operations to 100 kilometers.<sup>22</sup> However, the advance was to be achieved by using infantry, artillery, and infantry support tanks rather than large combined-arms mechanized units.

Tactics also changed in response to the experiences of the late thirties. Analysis of Spanish Civil War and Soviet-Finnish War

offensive experiences indicated that holding (covering) groups tended to become passive and, consequently, did not actively contribute to the success of battle. The effectiveness of long-range action tanks was also limited. Therefore, the 1941 Field Regulation organized rifle corps, divisions, and regiments into combat echelons, artillery groups, tank support groups, and reserves (general, tank, antitank). The rifle corps formed in single echelon while rifle divisions, regiments, and battalions deployed in two or three echelons. The three existing types of artillery groups (PP, DD, and AR) were supplemented by antitank and antiaircraft groups, and a single infantry support tank group (TPP-tankovoi podderzhki pekhoty) was created in the rifle division to replace the existing three tank groups. The offensive frontage of a rifle corps decreased to 8 to 12 kilometers and that of a rifle division to 3.5 to 4.5 kilometers. The depth of rifle corps and division missions increased to 20 kilometers, a result of greater concentration of combat force in narrower attack sectors.<sup>73</sup> These changes, however, did not eradicate persistent command and control problems.

In 1941 the Soviets abandoned the use of shock and holding groups on the defense and instead constructed tactical defenses on the basis of combat echelons, artillery groups, and reserves. The growth in power of potential enemy offensive forces caused the rifle division defensive sector to decrease to 6 to 10 kilometers. On the eve of the German invasion, the tactical defense zone included a security belt, a combat security position, a basic defense belt, and a second defense belt. In comparison with 1936, the depth of the tactical defense increased to 20

kilometers, and the main defense belt to 10 kilometers. Defenses were deep but still fragmentary, and the absence of continuous trenches inhibited lateral maneuver and hidden movements and deprived defenders of defensive cover against enemy artillery fire and air strikes.<sup>74</sup>

#### Motor-Mechanization Program: Phase 3

Soviet force development after 1937 progressed unevenly, reflecting on the one hand intent to strengthen the armed forces and, on the other hand, Soviet ambivalence over the value of using large mechanized formations to solve operational missions. This unevenness was accentuated by the absence of qualified military theorists who could or would speak out against what they perceived to be Stalin's views. Younger officers like Zhukov, Romanenko, Eremenko, Bagramian, and others did what they could in relative isolation to develop earlier operational concepts.

While Soviet expansion of the army was still underway and rifle corps and rifle divisions were being strengthened and rearmed, the Soviets severely truncated their motor-mechanized force structure. Stimulated by the fact that Soviet tank forces had performed poorly during the Spanish Civil War, in July 1939 the Main Military Soviet established a commission to investigate the failures and problems. The commission, chaired by Assistant Commissar of Defense, G. I. Kulik, consisted of influential officers, such as S. M. Budennyi, B. M. Shaposhnikov, E. A. Shchadenko, S. K. Timoshenko, K. A. Meretskov, and others. Meeting from 8 to 22 August, it considered a wide variety of

views, the most important of which was that of the Chief of the Armored-Tank Administration, Komkor D. G. Pavlov, who had served in Spain.<sup>75</sup>

Pavlov declared it was inexpedient to maintain large tank corps, stating that the use of these corps for "raids" in the enemy rear was not successful, since the possibility of such a penetration of the enemy front, after which the too unwieldy tank corps would be used to develop success, was out of the question. Pavlov asserted it was even more important and necessary for combined-arms, like infantry, artillery, and aviation to cooperate closely with the armor.<sup>76</sup> To include all these elements in a single tank corps would make the corps impossible to command and control.

Despite Pavlov's arguments, the commission's majority recommended retention of the corps, but with some significant changes in its organization. These changes were:

1. The tank corps is to remain, having excluded from its composition the rifle-machine gun brigade. Exclude the rifle-machine gun battalion from the structure of the tank brigade.
2. On the offensive, the tank corps must work for the infantry while developing the penetration. In these conditions tank brigades operate in close coordination with infantry and artillery. The tank corps can sometimes operate independently, when the enemy is in disorder and not able to defend.<sup>77</sup>

The commission further recommended that the corps' brigades be of two types: first, a BT-equipped brigade to conduct independent actions; and, second, T-26 and T-28 brigades to reinforce rifle divisions.

In late November the Main Military Soviet approved the commission's recommendations. The poor performance of the 15th and 25th Tank Corps

during operations in eastern Poland affirmed the wisdom of the decision of the Main Military Soviet. At the same time, however, it mandated creation of a force, which, it felt, could accomplish the missions of the former tank corps. On 21 November it ordered the formation of fifteen new motorized divisions, eight of which would form in 1940 and the remaining seven during the first six months of 1941.<sup>78</sup> Simultaneously, the Soviets created motorized rifle divisions with a lighter armored component.<sup>79</sup>

The new motorized division would consist of two motorized rifle, one tank, and one artillery regiment; reconnaissance, signal, light engineer, antiaircraft, and antitank battalions; and support units; with a strength of 11,650 men, 275 tanks (258 BT, 17 T-37 and T-40), 98 guns, and 49 armored cars.<sup>80</sup> The decision included plans to replace the older BT-7 tanks with new, modern T-34 tanks as soon as the new tanks were available.

The new divisions, which were considered more practical than the former tank corps, were to form the mobile group of armies to exploit tactical success or become part of a front's cavalry-mechanized group. Meanwhile, existing tank brigades of the older tank corps would provide armor support to rifle corps. The Red Army would dispose of thirty-two tank brigades and ten tank regiments, which in wartime would convert to brigades. These brigades were of two types: a light brigade with 258 BT-7 and T-26 tanks and a heavy brigade with 156 T-28 and T-35 tanks. In December 1939 the People's Commissariat of Defense ordered the tank corps to disband by 15 January 1940. By May 1940 the corps had been

disbanded, and four motorized divisions organized (1st, 15th, 81st, and 109th).<sup>81</sup>

The French Army's debacle in May-June 1940, which repeated the lesson in mobile warfare the Germans had taught the world in Poland in September 1939, stunned the Soviet leadership, who subsequently bitterly noted that, "Fascist Germany used the methods of deep operations which we developed earlier. The Germans borrowed the achievements of Soviet military-theoretical thought and with great success used them in the war with Poland and the West."<sup>82</sup> The Soviets responded to the defeat of France with a hasty program to rebuild a large mechanized force structure. They began forming large mechanized corps, each consisting of two tank divisions, one motorized division, a motorcycle regiment, separate signal and motorized engineer battalions, and an aviation squadron, with a wartime combat strength of 37,200 men and 1,108 tanks. The new tank divisions consisted of two tank, one motorized rifle, and one artillery regiment and a variety of support and service subunits, with a strength of 11,343 men, 413 tanks (105 KV, 210 T-34, 26 BT-7, 18 T-26, and 54 flamethrower), 91 armored cars, and 58 guns and mortars (greater than 50mm). The motorized division accorded with the organization of 5 December 1939.<sup>83</sup>

The Council of People's Commissars approved the new corps organization on 6 July 1940 and ordered creation of eight new corps and two separate tank divisions. From July to December 1940, the new force formed on the base of existing rifle and cavalry corps headquarters in the following regions:

Leningrad Military District	1st Mechanized Corps
Western Special Military District	3d Mechanized Corps
Kiev Special Military District	6th Mechanized Corps
Odessa Military District	4th Mechanized Corps
Transbaikal Military District	8th Mechanized Corps
Moscow Military District	2d Mechanized Corps
Transcaucasus Military District	5th Mechanized Corps
Central Asian Military District	7th Mechanized Corps
An additional corps (the 9th) formed in the Kiev Military District by year's end. <sup>54</sup>	6th Separate Tank Division 9th Separate Tank Division

As they analyzed German operations in Western Europe and pondered their own exercise data, the Soviets made further minor changes in mechanized corps organization during 1941. The most important of these reduced the quantity of heavy tanks in the tank regiment of tank divisions from 52 to 31 tanks, thus reducing division strength to 375 tanks and corps strength to 1,031 tanks.<sup>55</sup>

More importantly, in early 1941 the Soviets decided to increase its total number of corps twofold. In February the People's Commissariat of Defense ordered the formation of twenty-one additional corps throughout the remainder of the year for a total force of thirty mechanized corps. By 22 June 1941 twenty-nine mechanized corps, sixty-one tank divisions, and thirty-one motorized divisions were in various stages of formation.<sup>56</sup> These forces, however, were beset by a host of difficulties incident to their hasty creation and the weak Soviet technological base. As one Soviet analyst noted:

The new organization of the mechanized corps in 1940 was accepted without experimental tests. The communication means which were provided the corps were the same that were provided the 1939 corps, specifically 71 TK radio stations and 5 AK mobile vehicle stations. It is well known that the corps commander could not cope with command and control of the earlier 560-tank corps with the help of these radios.

The new corps commander was in an even more difficult situation, in which the quantity of tanks almost doubled.<sup>87</sup>

In addition, the new corps were receiving new KV and T-34 tanks in dribs and lacked logistical support infrastructure to serve the new tanks. Meanwhile, by Soviet admission the older tanks and equipment fell into disrepair (often permitted by commanders who expected the new equipment to solve their problems for them). This lamentable state was exacerbated by the poor training level of division, brigade, and battalion commanders, who had risen suddenly to command positions due to the effects of the still ongoing purges. In June and July 1941 the combat performance of these corps would bear witness to the flawed nature of the creation of the last prewar wave of Soviet motor-mechanization.

Throughout this period, Western intelligence continued to monitor the Soviet mechanization program in general and the performance of Soviet tank and motorized units in combat, particularly in Poland and Finland in 1939 and 1940. Western attaches documented the expanding number of tank corps in 1939 well beyond the number to which Soviet sources admit. Accounts of Soviet operations in Poland identify three mechanized corps, the 1st and 5th Mechanized Corps from Belorussia and the 45th Mechanized Corps from the Kiev Military District.<sup>88</sup> Reports from the Russo-Finnish War identify the 10th Mechanized Corps, which operated as unsuccessfully as its counterparts in Poland. Subsequent assessments made on the basis of information obtained before Soviet

implementation of the new mechanization program in July 1940 record more corps than the Soviets admit existed. These include the following:

11 August 1939--U.S. Army Attache Moscow

Moscow MD	5th Mechanized Corps	Marofominsk
Belorussian MD	1st Mechanized Corps	Minsk
Leningrad MD	11th Mechanized Corps	Leningrad
Kiev MD	45th Mechanized Corps	Kiev
Transbaikal MD	4th Mechanized Corps	Oloviannaia (Chita) <sup>99</sup>

6 August 1940--British War Office

Leningrad MD	7th Tank Corps	Leningrad
	10th Tank Corps	Viipuri
Belorussian MD	1st Tank Corps	Minsk
	15th Tank Corps	Minsk
	? Tank Corps	
Kiev MD	3d Tank Corps	Kiev
	25th Tank Corps	Proskurov
	? Tank Corps	
Moscow MD	5th Tank Corps	Marofominsk
Transbaikal MD	4th Tank Corps	Oloviannaia (Chita)
	9th Tank Corps	Bain Tuman (Mongolia)
First Red Banner Army (Far East)	8th Tank Corps	Grodekovo <sup>90</sup>

In addition to confirming the 5th (Moscow), 7th (Leningrad), 15th (Western), 25th (Kiev) and one other tank corps in the Far East, fragmentary Soviet accounts also mention the 10th Tank Corps in operation against Finland during the Winter War.<sup>91</sup> Given the details provided by intelligence sources, it is reasonable to assume that many, if not all, of these tank corps existed by late 1939. It is fairly certain, however, that the corps disbanded in accordance with Soviet orders, by January 1940.

German intelligence reports prepared throughout 1940 and early 1941 noted the existence of several types of tank brigades but no corps-size mechanized or tank organizations. By late spring 1941, German intelligence began identifying new mechanized corps in the border military districts. By June the Germans had identified portions of the 3d Mechanized Corps near Kaunas, the 6th Mechanized Corps around Bialystok, and elements of a mechanized corps near L'vov.<sup>32</sup> German intelligence confirmed the existence of the other seven mechanized corps in the immediate border regions only after hostilities commenced on 22 June 1941.

The Soviet motor-mechanization program during the three years prior to the German invasion experienced in rapid sequence hope, frustration, and tragedy. After 1936 the program was spurred on by sound theoretical work combined with the impressive achievements of Soviet military industry. Newer, larger formations emerged, which were field-tested in exercises and in combat abroad. Although such complex organization posed significant challenges, an imaginative group of military theorists and practitioners seemed able to give life to the program. The promising progress, however, abruptly ended in 1937 and 1938, only to be replaced by doubt and uncertainty.

The loss in the purges of the generation of military officers who provided spiritual and practical guidance to the motor-mechanization program stripped much of the vigor and focus from the program. This occurred just as military experience in Spain and China invited thorough, thoughtful analysis. Political terror from on high prompted

the replacement of analysis by whim. Poor performance of Soviet mechanized and tank forces in Poland and Finland reinforced whim and spelled doom for the program. For a brief period from November 1939 to July 1940, hitherto advanced Soviet concepts of modern maneuver war regressed.

When new examples of what mechanized forces could accomplish appeared in western Europe in May and June 1940, the Soviet reaction was swift, massive, but too late. The Soviets tried to shift gears overnight to create and simultaneously rearm an entirely new and massive mechanized force. The absence of a "brain" in the form of competent theorists required to manage such a program became evident. In 1941 the Soviets stumbled back into motor-mechanization. There was, however, no context for the program, save necessity. Leadership, logistics, and a conceptual framework for operations by such a force were absent. The result was the ensuing tragedy of June and July 1941.

### Conclusions

The Soviet motor-mechanization program developed through three distinct phases, each characterized by a unique intellectual context, concrete theoretical direction, and specific force structuring measures. These phases were:

Phase 1--To 1930  
Phase 2--1930 to 1938  
Phase 3--1938-1941

While the first two phases formed a continuum in terms of positive Soviet intent and accomplishments, the last period exhibited indecision and marked lack of focus.

In the late 1920s, the Soviets formulated a conceptual framework for the motorization and mechanization of its forces. Having pondered the requirements for future war, the Soviets articulated the concept of deep battle as a means for converting success in individual engagements (battles) into success in operations. Deep battle required creation of an armored and mechanized force which could satisfy that requirement. The Soviets planned for an economic leap forward, which would provide an industrial base capable of producing equipment necessary to create tank and mechanized forces. In the meantime, the Red Army fielded experimental tank forces as a test bed for even larger forces in the future. In essence, the theoretical work of the 1920s, together with force experimentation, represented a promise to achieve deep battle, a promise that could only be realized when a more mature industrial base existed. By 1930 that base was emerging.

The years 1930 to 1937 form one of the most productive periods for Soviet military art and science. Theoretical concepts for the use of the armored forces born in the 1920s matured in the 1930s in what was a virtual renaissance in military thought. The theory of deep battle reached fruition and evolved into an even grander concept for deep operations. The expanding Soviet industrial base produced the raw material necessary to create a modern motor-mechanized force, which could, with further refinement, translate the theory of deep operations into practice. Soviet theoreticians articulated theory and tested forces and weapons conceptually and through an extensive field exercise program. There were, of course, serious deficiencies, which only further thought, training, and technological progress could overcome. In time, it seemed that even these problems could be surmounted. Time, however, was not available, since in 1937 Stalin crushed and eradicated the brightest minds and most talented field commanders within the Red Army officer corps. Deprived of its brain, the Red Army atrophied. A period of indecision, turmoil, and peril ensued, which undid virtually all of the progress made in the previous two years.

The purges of 1937 ushered in a new period of regression in Soviet military thought, which were reflected as well in the Red Army's force structure. While the purges unfolded, the Red Army was unable to continue positive development of its advanced military concepts. The spirit of reform died with its creators, the theory of deep operations fell into temporary disrepute, and the disciples of the purged theorists were unable to revive it. Compounding this tragedy, the skilled minds

necessary to analyze objectively the mixed experiences of the Spanish Civil War were notably absent. Imagination fell victim to mental stagnation as the mediocre inherited the mantle of the brilliant. Deadening of theory was the first legacy of the purges. The motor-mechanization program faltered soon after. The decision to abolish the tank corps was the first retreat from creativity. The embarrassing performance of the Red Army in Poland and Finland was the second.

In mid-1940 necessity in the form of the specter of future defeat raised the Red Army from its lethargy. The spectacle of victorious German blitzkrieg in the West starkly set against the backdrop of the miserable Soviet performance in the Finnish War forced the Soviet High Command to act. It did so in late 1940 like a fighter only partially awakened from a stupor. Overnight the Soviets attempted to undo the wholesale damage done in the previous two years. In so doing, it committed the twin cardinal sins of attempting simultaneously to restructure and reequip its entire mobile force structure. In a period of tranquility, such a task would have been Herculean; in a period of peril it almost proved fatal. As a consequence, it would take two more years of catastrophic losses before a new generation of talented Soviet military leaders would be able to realize the dreams of their equally talented but frustrated forebears of the 1930s.

### Notes

1. In addition to analyzing extensively their own experiences, the Soviets looked closely at the German offensives of 1914 and 1918 and the subsequent allied response. For example, see V. Melikov, Marne-1914 goda. Visla-1920 goda. Smirna-1922 goda [Marne-1914, Vistula-1920, Smyrna-1922], (Moscow: Gosudarstvennoe Izdatel'stvo otdel' voennoi literatury, 1928). The 1918 operations offered something of a model for successive operations and partially demonstrated what successive operations could potentially achieve. Unfortunately for the Germans, weakness produced by years of bloody combat denied Germany the ability to exploit fully her 1918 success.
2. A. A. Svechin, "Strategiia" [Strategy], Voprosy strategii i operativnogo iskusstva v sovetskih voennnykh trudakh (1917-1940 gg.) [Questions of strategy and operational art in Soviet military works (1917-1940)], (Moscow: Voenizdat, 1965), 218-219, hereafter cited as Voprosy strategii.
3. Ibid., 219.
4. Ibid.
5. Ibid., 238.
6. The Five-Year Plans, while providing the wherewithal for heavy industry and the modernization of agriculture, created an industry suited for production of tanks. Producing tanks was but a small step from producing tractors.
7. S. S. Kamenev, "Ocherednye voennye zadachi" [Successive military objectives], Voprosy strategii, 144-152.
8. M. Zakharov, "Preduslovie" [Preface], Voprosy strategii, 12.
9. V. K. Triandafillov, "Kharakter operatsii sovremennoy armii" [The character of operations of modern armies], Voprosy strategii, 291-345.
10. I. Kh. Bagramian, ed., Istoria voin i voennogo isskussstva [A history of wars and military art], (Moscow: Voenizdat, 1970, 103). For details on the nature of successive operations, see R. Savushkin, "K voprosu o zarozhdenii teorii posledovatel'nykh nastupatel'nykh operatsii--1921-1929 gg." [Concerning the creation of the theory of successive offensive operations--1921-1929], Voenno-istoricheskii zhurnal [Military-historical journal], No. 5 (May 1983), 77-83, hereafter cited as VIZh.
11. Bagramian, 103.

NOTES (Continued)

12. V. Matsulenko, "Razvitiye taktiki nastupatel'nogo boia" [The development of the tactics of offensive battle], VZh, No. 2 (February 1968), 28-29; I. Zakharov, "O teorii glubokoi operatsii" [Concerning the theory of deep operations], VZh, No. 10 (October 1970), 10-13.
13. A. Riazansky, "The Creation and Development of Tank-Troop Tactics in the Pre-War Period," Voennyi yestnik [Military herald], (November 1966), 25-32, translated in Selected Readings in Military History: Soviet Military History I. The Red Army 1918-1945, (Combat Studies Institute, Ft. Leavenworth, KS, 1984).
14. I. F. Kuz'min, Na strazhe mirnogo truda [On guard over peaceful work], (Moscow: Voenizdat, 1959), 114.
15. "Tanksyi polk" [Tank regiment], Sovetskaia voennaia entsiklopediia [Soviet military encyclopedial, 8 Vols. (Moscow: Voenizdat, 1976-1980, 7:674, hereafter cited as SVE with appropriate volume.
16. Kuz'min, 114; A. Ryzhakov, "K voprosy o stroytel'stve bronetankovykh voisk Krasnoi Armii v 30-e gody" [Concerning the formation of Red Army armored forces in the 1930s], VZh, No. 8 (August 1968), 105.
17. Ryzhakov, 105-106.
18. Ibid., 106; Kuz'min, 114.
19. "Tables of Organization of Armored Detachments of the Red Army," Combat Factor-Russia. G-2 Report No. 2611, (Washington, D.C.: Military Intelligence Division, War Department, March 21, 1922).
20. "Organizational Training, Criticism of Tank Training," Russia (Combat). G-2 Report No. 5622-6720, (Washington, D.C.: Military Intelligence Division, War Department, January 18, 1927).
21. "Organization of Units, 3d Independent Tank Regiment (Peace Organization)," Russia (Combat). G-2 Report No. 5793-6170, (Washington, D.C.: Military Intelligence Division, War Department, April 27, 1927).
22. "Dislocation of the Red Army and Personnel According to Military Districts," G-2 Report 7087-6180, (Washington, D.C.: Military Intelligence Division, War Department, December 10, 1928), originally prepared by the Latvian General Staff.
23. Ryzhakov, 106.

NOTES (Continued)

24. I. V. Ogarkov, "Strategiia voennaia" [Military strategy], SVE, 1979, 7:561.
25. I. V. Ogarkov, "Glubokaia operatsiia" [The deep operational], SVE, 1976, 2:574; V. Daines, "Razvitiye taktiki obshchevoiskovogo nastupatel'nogo boia v 1929-1941gg" [The development of the tactics of combined arms offensive battle--1929-1941], VZh, No. 10 (October 1978), 96.
26. I. Korotkov, "Voprosy obshchei taktiki v sovetskoi voennoi istoriografii--1918-1941gg" [Questions of general tactics in Soviet military historiography--1918-1941], VZh, No. 12 (December 1977), 89.
27. Daines, 96.
28. M. M. Kozlov, "Frontovaia nastupatel'naia operatsiia" [The front offensive operation], SVE, 1980, 8:337.
29. Bagramian, 106.
30. Ogarkov, "Glubokaia operatsiia," 576; V. Matsulenko, "Razvitiye operativnogo iskusstva v nastupatel'nykh operatsiakh" [The development of operational art in offensive operations], VZh, No. 10 (October 1967, 40, states that shock armies contained three-four rifle corps.
31. A. A. Strokov, ed., Istoriia voennogo iskusstva [A history of military art], (Moscow: Voenizdat, 1966), 316.
32. Strokov, 317; Bagramian, 108.
33. Bagramian, 110; Daines, 96-101; Strokov, 318-321.
34. Strokov, 321. For details on Soviet employment of tank echelons, see R. A. Savushkin, I. M. Ramanichev, "Razvitiye taktiki obshchevoiskovogo boia v period mezhdunarodnoi grazhdanskoi i Velikoi Otechestvennoi voinami" [The development of combined arms battle tactics in the period between the Civil War and Great Patriotic War], VZh, No. 11 (November 1985), 21-28. Confirmed by Western reports, among which is P. R. Faymonville, "The Use of Tanks in Combat Under the Provisions of the Field Service Regulations of 1936," Enclosure 1 to Dispatch 857-350 (American Embassy, Office of the Military Attaché, USSR: 26 May 1937). Similar attaché reports from Riga (Latvia), Tallin (Estonia), and Warsaw (Poland) confirm Faymonville's judgements.
35. On 1 January 1938 Red Army strength was 1,518,400 men. K. F. Skorobogatkin, ed., 50 let vooruzhennykh sil SSSR [50 years of the Soviet Armed Forces], (Moscow: Voenizdat, 1968), 198, hereafter cited as 50 let.

NOTES (Continued)

36. Ryzhakov, 106.
37. Ibid., Kuz'min, 175; I. Krupchenko, "Razvitiye tankovykh voisk v period mezhdu pervoi i vtoroi mirovymi voinami" [The development of tank forces in the period between the First and Second World Wars], VIZh, No. 5 (May 1968), 41-42, list brigade strength as 90 tanks and 17 armored cars.
38. Ryzhakov, 116; Kuz'min, 175.
39. Ryzhakov, 106-107.
40. Ibid., 107.
41. Ibid.
42. Ibid.
43. "Distribution of Troops--The Red Army," Russia (Combat) G-2 Report No. 7513-6180, Washington, D.C.: Military Intelligence Division, War Department, July 1, 1930).
44. "Armored, Motorized and Mechanized Troops, Red Army," Russia (Combat) G-2 Report No. 1586-6170, (Washington, D.C.: Military Intelligence Division, War Department, March 24, 1932).
45. "Progress of Motorization and Mechanization in the Red Army," Soviet Russia (Combat) G-2 Report No. 6550, (Washington, D.C.: Military Intelligence Department, War Department, July 13, 1933).
46. "Deep Tactics," G-2 Report No. 8451 from M/A, Riga, Latvia, (Washington, D.C.: Military Intelligence Division, War Department, September 20, 1933).
47. Ibid.
48. Ibid.
49. "Motor-Mechanized Units in the Leningrad Military District," Soviet Russia (Combat) G-2 Report No. 8509-6170, (Washington, D.C.: Military Intelligence Division, War Department, November 9, 1933).
50. "Organization of Motor-Mechanized Units," Soviet Russia (Combat) G-2 Report 8508-6170, (Washington, D.C.: Military Intelligence Division, War Department, November 9, 1933).

NOTES (Continued)

51. "Distribution of Motor-Mechanized Units and Armored Trains," Soviet Russia (Combat), G-2 Report 8601-6170/6180, (Washington, D.C.: Military Intelligence Division, War Department, January 11, 1934).
52. "Distribution of Army and Air Units," Soviet Russia (Combat), G-2 Report 8678-6180, (Washington, D.C.: Military Intelligence Division, War Department, March 20, 1934).
53. Intelligence Summary for April 20, 1934, No. 562, (Washington, D.C.: Military Intelligence Division, War Department, April 20, 1934).
54. "Tank Tactics," Soviet Russia (Combat), G-2 Report No. 6700, (Washington, D.C.: Military Intelligence Division, War Department, February 4, 1935).
55. Ryzhakov, 108.
56. Ibid.
57. Ibid.
58. Ibid.
59. "Distribution of Major Units of the Red Army," Soviet Russia (Combat), G-2 Report 8949-6100/6120/6130/6140, (Washington, D.C.: Military Intelligence Division, War Department, January 7, 1935).
60. "Organization of Motor-Mechanized Units," Soviet Russia (Combat), G-2 Report 9018-6170, (Washington, D.C.: Military Intelligence Division, War Department, March 6, 1935).
61. Ryzhakov, 108-109.
62. Ibid., 109; Krupchenko, 42.
63. "Distribution of Mechanized Units in the Red Army," Soviet Russia (Combat-Army), G-2 Report 9820-6180, (Washington, D.C.: Military Intelligence Division, War Department, August 15, 1937).
64. Intelligence Summary for December 24, 1937, (Washington, D.C.: Military Intelligence Division, War Department, December 24, 1937).
65. "Distribution of Major Motor-Mechanized Units," USSR (Combat-Army), G-2 Report No. 10218-6180, (Washington, D.C.: Military Intelligence Division, War Department, September 20, 1938).

NOTES (Continued)

66. "Organization and Strength of Motor-Mechanized Units," USSR (Combat-Army), G-2 Report No. 10216-6100/6150, (Washington, D.C.: Military Intelligence Division, War Department, September 20, 1938).

67. Ryzhakov, 109-110; A. I. Gribkov et al, ed., Istoriia ordena Lenina Leningradskogo voennogo okruga [History of the Order of Lenin Leningrad Military District], (Moscow: Voenizdat, 1974), 160.

68. See "Distribution of Major Units and Names of Commanders," USSR (Combat-Army), G-2 Report 10261-6180, (Washington, D.C.: Military Intelligence Division, War Department, November 25, 1938), which identified the 1st Mechanized Corps headquarters at Minsk and its subordinate brigades. This corps is again identified in "Distribution of Troops: Location by Military Districts," USSR (Combat-Army), G-2 Report 1557-6180, Washington, D.C.: Military Intelligence Division, War Department, August 11, 1939). Finally, a definitive listing of tank corps appears in Order of Battle of the Red Army 1.8.40., (London: The War Office, August 1940), attached to Military Attache Report USSR No. 6115/9115, (Washington, D.C.: Military Intelligence Division, War Department, August 6, 1940).

69. O. F. Suvenirov, "Vsearmeiskaia tragediia" [An all-army tragedy], VIZh, No. 3 (March 1989), 41, lists the cost of the purges as follows:

<u>Command Losses (liquidated)</u>	
Brigade commanders	221 out of 397
Division commanders	136 out of 199
Corps commanders	60 out of 67
Army commanders of 2d Rank	12 out of 12
Army commanders of 1st Rank	2 out of 4
Marshals	3 out of 5

These figures accurately reflect Western assessments of the scale of the purges. These assessments began appearing days after the purges commenced.

70. Ryzhakov, 110; Krupchenko, 43.

71. Among the many sources, see I. Kuznetsov, "U reki Khalkhin-Gol" [Along the Khalkhin-Gol River], VIZh, No. 7 (July 1969), 126-128.

72. Strokov, 316; Bagramian, 106. For an excellent articulation of Soviet views on operational art and tactics in late 1940 and 1941, see Zakliuchitel'naia rech' narodnogo komissara oborony soiuza SSSR 1940 geroia i marshala Sovetskogo Soiuza S. K. Timoshenko na voennom soveshchanii 31 dekabria 1940g. [Concluding speech of the People's Commissar of Defense of the Soviet Union, Hero and Marshal of the Soviet Union S. K. Timoshenko at a military conference, 31 December 1940], (Moscow: Voenizdat, 1941). In it Timoshenko fully articulated mobile

NOTES (Continued)

concepts of 1936, stating, "The mobile group in front offensive operations is called upon to perform the mission of creating conditions for developing tactical success into operational, and sometimes into operational-strategic."

73. Bagramian, 111; Strokov, 319. For details on the Soviet debate concerning use of tanks, see M. A. Moscow Report No. 1384, 19 November 1938, which contains a series of articles translated from Krasnaia Zvezda [Red Star], which provide detailed analysis of combined-arms operations in Spain and the difficulties encountered there by tank units.

74. Bagramian, 112; Strokov, 321.

75. Ryzhakov, 109.

76. Ibid.

77. Ibid.

78. Ibid., 110; I. Krupchenko, ed., Sovetskie tankovye voiska 1941-1945 [Soviet tank forces 1941-1945], (Moscow: Voenizdat, 1973), 12.

79. "Motorstrelkovaia diviziia" [Motorized rifle division]. SVE, 5:435. The division consisted of three motorized rifle and one artillery regiment, tank, antiaircraft, and reconnaissance battalions, and supporting units for a strength of 10,000 men, 37 tanks, 209 guns and mortars, 58 armored cars, and about 1,400 vehicles.

80. Ryzhakov, 110; Krupchenko, "Razvitie," 43, pinpoints motorized division strength at 257 tanks, probably a typographical error.

81. Ibid., 110; Krupchenko, "Razvitie," 42-43.

82. Zakharov, "Preduslovie," 23.

83. O. A. Losik, ed., Stroitel'stvo i boevoe primenenie sovetskih tankovykh voisk v gody Velikoi Otechestvennoi voiny [The formation and combat use of Soviet tank forces in the years of the Great Patriotic War], (Moscow: Voenizdat, 1979), 44; Ryzhakov, 110.

84. Ryzhakov, 110.

85. Ibid.

86. Ibid., 111.

87. Ibid., 110-111.

NOTES (Continued)

88. "Distribution of Troops," USSR (Combat-Army), G-2 Report 1609-6180, (Washington, D.C.: Military Intelligence Division, War Department, December 1, 1939).
89. "Distribution of Troops," USSR (Combat-Army), G-2 Report 1557-6180, (Washington, D.C., Military Intelligence Division, War Department, August 11, 1939).
90. "Order of Battle of the Red Army 1.8.40."
91. A. I. Gribkov, et al., Istorii, 160.
92. See Lage der Roten Armee im europaischen Russland abgeschlossen am 2. VI. 41. Abteilung Fremde Heere Ost, H3/1346, IAH T-75, 677, which shows all assessed Soviet unit locations in the border military districts. Records of German army groups and armies participating in Operation Barbarossa confirm this intelligence picture. Later intelligence documents of the same commands confirm the actual Sovit order of battle as described in a multitude of Soviet sources.